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Title **Design of Aerospace Vehicles for Infrared Signature Reduction**

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Abstract

This report details with various techniques and methods that reduce IR signatures of an aircraft. The components of aircraft that are responsible for IR signatures are described first. Various stages in a turbofan engine are represented parametrically and thereby the effect of thermodynamic cycle parameters on IR reduction is estimated. The effect of gas dynamics parameters of exhaust plume on IR signature is also studied. Various nozzle configurations that are used to control IR signature of aircraft are described. Finally, IR materials and coatings that have been used to reduce IR signature are reported.